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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/556,066

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Hideki Nakata

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EXAMINER

BATTAGLIA, MICHAEL V

ART UNIT

PAPER NUMBER

2627

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/556,066	<b>Applicant(s)</b> NAKATA ET AL.	
	<b>Examiner</b> Michael V. Battaglia	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Drawings***

2. Figures 13-16 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

3. Claim 16 is objected to because of the following informality. On line 4 of claim 16, replacing "a adhesive" with --an adhesive-- is suggested. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Toyoda et al. (hereinafter Toyoda) (JP 07-130024). Note that citations to the text of Toyoda refer to the attached translation provided by the Japanese Patent Office website.

In regard to claim 15, Toyoda discloses an optical head (Figs. 1 and 2), comprising: a light source (Figs. 1 and 2, element LD); a light flux separation element (Fig. 1, elements 31-37 and 39) that separates a light flux (Fig. 1, element LA1) emitted from the light source for at least a first light flux (part of exit light beam LA1 that “is reflected in the magneto-optical disc 10 direction [by] the beam splitter 32” of Paragraph 0021) and a second light flux (“part of exit light beam LA1 from semiconductor laser 2 [that] penetrates the beam splitter film 32” of Paragraph 0025) to come out therefrom; an objective lens (implicitly, if not inherently, in the optical head of Toyoda (see Fig. 4, element 8 and Fig. 5, element L2)) on which the first light flux is incident to be collected on an optical information recording medium (“magneto-optical disc 10” of Paragraphs 0016 and 0021 and see Figs. 4 and 5); a light-receiving element (Figs. 1 and 2, element PDM) on which the second light flux is incident (Paragraph 0025); an arithmetic circuit (Fig. 2, element 61) that adjusts a quantity of light emitted from the light source in response to a quantity of light incident on the light-receiving element (Fig. 2 and Paragraphs 0032-0033); and a photo-detector (Figs. 1 and 2, elements PD1 and PD2) on which reflected light from the optical information medium is incident (Paragraphs 0021-0024), wherein a light exiting-surface of the light flux separation element from which the second light flux comes out is laminated to a light incident-surface of the light-receiving element on which the second light flux is incident (Fig. 1).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 16 and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (hereinafter AAPA) in view of Kamisada (JP 02-166623). Note that citations to the text of AAPA refer to United States Application Publication No. 2007/0041290, which is the publication of Applicant's US Application No. 10/556,066. Also note that citations to the text of Kamisada refer to the English translation of the Abstract provided in Applicant's November 8, 2005 Information Disclosure Statement.

In regard to claim 15, AAPA discloses an optical head (Figs. 13-16), comprising: a light source (Figs. 15 and 16, element 2); a light flux separation element (Fig. 15, element 8) that separates a light flux emitted from the light source for at least a first light flux ("Part of the light fluxes [that] passes through beam splitter 8a" of Paragraph 0015) and a second light flux ("the rest of the light fluxes [that] are reflected on the beam splitter 8a" of Paragraph 0015) to come out therefrom; an objective lens (Fig. 15, element ) on which the first light flux is incident to be collected on an optical information recording medium (Fig. 15B, element 13); a light-receiving element (Fig. 15A, element 36) on which the second light flux is incident; an arithmetic circuit that adjusts a quantity of light emitted from the light source in response to a quantity of light incident on the light-receiving element ("arithmetic circuit (not shown) that controls a quantity of light emitted from the semiconductor laser 2 in response to a quantity of light received on the light-receiving element 36" of Paragraph 0012); and a photo-detector (Fig. 16, elements 24-27) on which reflected light from the optical information medium is incident, wherein the light flux separation element has a light exiting-surface from which the second light flux comes out and the light-receiving element has a light incident-surface on which the second light flux is incident

(Fig. 15). AAPA does not disclose that the light exiting-surface of the light flux separation element is laminated to the light incident-surface of the light-receiving element.

Kamisada discloses a light flux separation element (Figs. 1 and 2, element 10) that separates a light flux (Figs. 1 and 2, element 2a) emitted from a light source (Fig. 1, element 1) for at least a first light flux (Figs. 1 and 2, element 2b) and a second light flux (Figs. 1 and 2, element 2c) to come out therefrom; and a light-receiving element (Figs. 1 and 2, element 12) on which the second light flux is incident; wherein a light exiting-surface of the light flux separation element from which the second light flux comes out is laminated to a light incident-surface of the light-receiving element on which the second light flux is incident (Fig. 2 and note element 13). Kamisada teaches that by doing so, the light receiving element is “accurately fixed” to the light flux separation element “so that misalignment is surely prevented” using a “simple and economical production process[]” (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the light exiting-surface of the light flux separation element of AAPA to be laminated to the light incident-surface of the light-receiving element of AAPA as suggested by Kamisada, the motivation being for the light receiving element of AAPA to be accurately fixed to the light flux separation element of AAPA so that misalignment is surely prevented using a simple and economical production process.

In regard to claim 16, Kamisada discloses that the light exiting-surface of the light flux separation element from which the second light flux comes out is laminated to the light incident-surface of the light-receiving element on which the second light flux is incident via an adhesive layer (Fig. 2, element 13).

In regard to claims 21-24, AAPA in view of Kamisada discloses the optical head of claim 16 but does not specify the transmission wave aberration of the adhesive layer and therefore does not disclose that the transmission wave aberration of the adhesive layer is set between 60 mλ and 200 mλ inclusively.

However, Kamisada discloses an adhesive layer (Fig. 2, element 13) which laminates the light exiting-surface of the light flux separation element from which the second light flux comes out to the light incident-surface of the light-receiving element on which the second light flux is incident (see rejection of claims 15 and 16 over AAPA in view of Kamisada above). Because the adhesive layer of Kamisada inherently has a transmission wave aberration set at a level sufficient for the detection of the second light flux, the general conditions of claims 21-24 are disclosed in the prior art. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation” (MPEP 2144.05(II)(A) quoting *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

“A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation” (MPEP 2144.05(II)(A) citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)). Transmission wave aberration of an adhesive layer is recognized as a result-effective variable because decreasing transmission wave aberration decreases wavefront aberration while increasing transmission wave aberration simplifies and reduces the cost of producing the adhesive layer by

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increasing the tolerance for thickness variation (see Col. 11-24 of Nishiyama et al. (hereinafter Nishiyama) (US 6,580,674)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the transmission wave aberration of the adhesive layer of AAPA in view of Kamisada to be set between 60 mλ and 200 mλ inclusively, the motivation being the “normal desire of scientists or artisans to improve upon what is already generally known” (MPEP 2144.05(II)(A) quoting *In re Peterson*, 315 F.3d 1325 at 1330, 65 USPQ2d 1379 at 1382 (Fed. Cir. 2003)).

In regard to claim 25, Kamisada discloses that the adhesive layer is made of UV-curing adhesive (Abstract).

In regard to claim 26, AAPA discloses that the optical head further comprises: an objective lens moving mechanism (Figs. 13 and 14, element 14) that moves the objective lens in a focus direction and in a tracking direction (Paragraph 0011), wherein: the objective lens moving mechanism includes a holder (Fig. 13, element 12) that holds the objective lens to be movable in the focus direction and in the tracking direction, and a base (Figs. 13 and 14, element 15) that supports the holder; and the light flux separation element is disposed so as to be set inside the base (Figs. 13 and 14).

In regard to claim 27, in the combination of AAPA in view of Kamisada, the light-receiving element is disposed so as to be set inside the base together with the light flux separation element because the light-receiving element is disposed together with the light flux separation element which is inside the base (see Figs. 13 and 14 of AAPA and the rejections of claims 15 and 26 over AAPA in view of Kamisada above).



In regard to claim 28, AAPA in view of Kamisada disclose an optical information medium driving device, comprising: the optical head of claim 15 (see the rejection of claim 15 over AAPA in view of Kamisada above); a focus control circuit (Fig. 13 of AAPA, element 18a) that controls the optical head on the basis of a focus error signal ("Focus Error Signal" of Fig. 16 of AAPA) obtained from the optical head (Paragraphs 0011 and 0019); and a tracking control circuit (Fig. 13 of AAPA, element 18b) that controls the optical head on the basis of a tracking error signal ("Tracking Error Signal" of Fig. 16 of AAPA) obtained from the optical head (Paragraphs 0011 and 0019).

6. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Kamisada as applied to claim 16 above, and further in view of Kondo (US 2003/0053404).

AAPA in view of Kamisada discloses the optical head of claim 16 but does not specify the light transmittance of the adhesive layer and therefore does not disclose that the adhesive layer has a light transmittance between 60% and 80% inclusively.

Kondo discloses an adhesive transparent layer having a light transmittance between 60% and 80% inclusively (Paragraph 0120).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the adhesive layer of AAPA in view of Kamisada to have a light transmittance between 60% and 80% inclusively as suggested by Kondo, the motivation being for the adhesive layer of AAPA in view of Kamisada to be transparent so as to avoid the difficulty in stable control of the light source of AAPA in view of Kamisada caused by a decrease in the light-quantity introduced on the light-receiving element of AAPA in view of Kamisada and a decrease

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in the accuracy of the light quantity detected (note that this is motivation comes from knowledge generally available to one of ordinary skill in the art at the time of the invention (see Col. 4, lines 49-62 of Saimi et al. (US 5,640,380))).

7. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Kamisada as applied to claim 16 above, and further in view of Nishiyama.

In regard to claim 21, AAPA in view of Kamisada discloses the optical head of claim 16 but does not specify the transmission wave aberration of the adhesive layer and therefore does not disclose that the transmission wave aberration of the adhesive layer is set to 20 mλ or larger.

Nishiyama discloses setting the transmission wave aberration of an adhesive layer to 20 mλ or less “to minimize the wavefront aberration” (Col. 8, lines 11-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the transmission wave aberration of the adhesive layer of AAPA in view of Kamisada to 20 mλ or less as suggested by Nishiyama, the motivation being to minimize the wavefront aberration.

“In the case where the claimed ranges ‘overlap or lie inside ranges disclosed by the prior art’ a prima facie case of obviousness exists” (MPEP 2144.05(I) quoting *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)). Here, the claimed range of 20 mλ or larger overlaps the range of 20 mλ or less disclosed by the prior art. As a result, prima facie case of obviousness exists.

In regard to claim 22, Nishiyama discloses that the transmission wave aberration of the adhesive layer of AAPA in view of Kamisada and further in view of Nishiyama is set to 300 mλ or smaller (Col. 8, lines 11-24).

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hibino (US 2003/0081520) discloses an optical head (Figs. 3-5), comprising: a light source (Figs. 4 and 5, element 26); a light flux separation element (Figs. 4 and 5, element 30); an objective lens (Figs. 4 and 5, element 40); a light-receiving element (Figs. 4 and 5, element 32); and a photo-detector (Figs. 4 and 5, element 60), wherein the light exiting-surface of the light flux separation element from which the second light flux comes out is provided with a light incident-surface of the light-receiving element on which the second light flux is incident (Paragraph 0078). Horimai et al. (US 5,563,869) disclose arranging a photodetector on the surface of a light separator so that the optical head can be made smaller in size (Fig. 8 and Col. 12). Horinouchi et al. (US 2003/0185137) disclose directly fixing a photodetector to a light separator to form an integral unit (Paragraph 0029).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Battaglia whose telephone number is (571)272-7568. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael V. Battaglia/  
Patent Examiner, Art Unit 2627